



UNITED STATES PATENT AND TRADEMARK OFFICE

18
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,301	02/23/2004	Akira Kuibira	39.034	2300

29453 7590 04/19/2005

JUDGE PATENT FIRM
RIVIERE SHUKUGAWA 3RD FL.
3-1 WAKAMATSU-CHO
NISHINOMIYA-SHI, HYOGO, 662-0035
JAPAN

EXAMINER

PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
----------	--------------

3742

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,301

Applicant(s)

KUIBIRA ET AL.

Examiner

Sang Y Paik

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kholodenko et al (US 6,310,755) or Kadomura et al (US 5,968,273) in view of Hiramatsu et al (US 6,507,006) or Ito et al (US 6,717,116).

Kholodenko or Kadomura shows a holder having a ceramic susceptor made of aluminum nitride having a retaining side with a resistive heating element incorporated and positioned in the susceptor toward the side opposite the retaining side, and a metal plate made of aluminum and silicon carbide provided on the susceptor opposite the retaining side. However, neither Kholodenko nor Kadomura shows the heating element is pattern in a circuit having a pattern spacing of .1 mm or more.

Hiramatsu or Ito shows a heating circuit pattern having a through hole having the diameter of more than .1 mm between the circuit patterns. In view of Hiramatsu or Ito, it would have been obvious to one of ordinary skill in the art to adapt Kholodenko or Kadomura with the circuit pattern having the spacing pattern more than .1 mm not only to prevent a short circuit between the heating pattern but also to provide an adequate spacing to incorporate the through holes for lifting pins or the holes for displacing thermocouples therein.

Art Unit: 3742

With respect to claims 5 and 7, the claimed thermal conductivity is also taught by Kholodenko or Kadomura which shows the ceramic susceptor and the metal plate that are made of the same material or composition which would inherently possesses the claimed thermal conductivity.

With respect to claim 10, Kholodenko et al further shows that the susceptor has the diameter of about 200mm.

With respect to claim 11, Hiramatsu shows a semiconductor wafer chuck with a ceramic substrate with the porosity less than 5%, and, preferably from 0.01 to 3%. In view of Hiramatsu, it would have been obvious to one of ordinary skill in the art to adapt Kholodenko et al or Kadomura et al with the claimed porosity to more effectively maintain the voltage drop in the ceramic substrate to improve the chucking of a wafer to the heating surface.

With respect to claim 12, Ito shows a semiconductor wafer heater having a surface flatness or warpage of less than 50 microns. In view of Ito et al, it would have been obvious to one of ordinary skill in the art to adapt Kholodenko et al or Kadomura et al with the retaining side with the claimed warpage to ensure a uniform heating transfer between the heating surface and a heated object.

Response to Arguments

3. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues that the metal plates in Kholodenko and Kadomura are directed to teachings that are contrary to the disclosed invention which is to reflect heat rather than drawing heat away as done in Kholodenko or Kadomura. First, it is noted that there is no claim recitation

Art Unit: 3742

with respect to either reflecting heat or drawing heat from the claimed apparatus. Furthermore, the metal plates of Kholodenko or Kadomura would have performed the disclosed function of reflecting heat as well during the heating operation having the same claimed metal plate.

With respect to the claimed porosity, Hiramatsu clearly teaches that ceramic substrate has the porosity of less than 5% or less in column 4, lines 44-49. The disclosed teaching of the dielectric film on column 12, lines 28-33 would further allow the ceramic substrate to have the porosity between .01 to 3% to keep the ceramic stable at high temperature.

With respect to Ito, the claimed warpage having the range of 500 microns or less is clearly met by Ito having the warpage 50 microns which is in the claimed range of 0-500 microns.

The newly recited claim is also met by Hiramatsu or Ito.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 3742

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. R.

Sang Y Paik
Primary Examiner
Art Unit 3742

syp